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09/710,834	11/14/2000	Kazuyuki Hayashi	1417-332	5623

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EXAMINER

AHMED, SHEEBA

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 01/02/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/710,834

Applicant(s)

HAYASHI ET AL.

Examiner

Sheeba Ahmed

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#7

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicants election, received on October 21, 2002 (Paper No. 6), in response to the election requirement mailed on October 3, 2002 (Paper No. 7), is acknowledged. Upon further consideration by the Examiner, the election requirement has been withdrawn.

Claims 1-36 are pending and now under consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 22-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi et al. (EP 0936507 A2).

Hayashi et al. disclose black magnetic composite particles (***corresponding to the black magnetic composite particles of the claimed invention***) comprising (a) magnetic iron oxide particles (***thus meeting the limitation that the particles are magnetic metal particles containing iron as a main component***) having an average diameter of 0.055 to 0.95 microns and (b) a coating on the surface of the magnetic iron oxide particles comprising an organosilicon compound wherein the organosilicon compound is an alkoxysilane, a polysiloxane or a modified polysiloxane and (c) a

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carbon black fine particle coating on the organosilicon coating wherein the carbon black particles have a particle size of 0.002 to 0.05 microns and is present in an amount from 1 to 25 parts by weight per 100 parts by weight of the magnetic iron oxide particles (See Abstract). The magnetic iron oxide particle may have a coat on at least a part of the surface of the particles of one compound selected from the group consisting of hydroxides of aluminum, oxides of aluminum, hydroxides of silicon and oxides of silicon in an amount of 0.01 to 50% by weight, calculated as Al or silicone oxide, based on the total weight of the magnetic iron oxide particles (**thus meeting the limitations of claim 23**) (Page 3, lines 54-58). The magnetic iron oxide particles may be acicular and have aspect ratios of not less than 2:1 and preferably 2:1 to 10:1 (**thus meeting the limitation that the particles are acicular, as required by claim 22**) and the geometrical standard deviation is not more than 2 (Page 5, lines 22-38 and 49-51). The BET specific surface area and the blackness (L^*) of the black magnetic particles is 1 to 200 m^2/g and 18-25, respectively (**thus meeting the aspect ratio, BET specific surface area, blackness and geometrical standard deviation limitations of claim 25**) (Page 6, lines 10-13 and 47-48). The modified polysiloxanes are modified by polyethers, polyesters or epoxies. The alkoxysilane compounds include methyl triethoxysilane, dimethyl diethoxysilane and tetraethoxysilane (**thus meeting the limitations of claim 26**). The polysiloxanes are represented by Figure II on Page 7 (**thus meeting the limitations of claim 27**) (Page 7, lines 25-57). The polysiloxanes modified by the polyethers, polyesters and epoxy compounds are represented by Figures III, IV, and V on Page 8 and Figure VI on Page 9 (**thus meeting the limitations**

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of claims 28 and 29). The coating amount of the organosilicon compounds is usually between 0.02 to 5 % by weight (***thus meeting the limitations of claim 30***) (page 9, lines 31-34). The carbon black fine particles are coated on the organosilicon coating by adding the carbon black particles to the organosilicon coated magnetic particles and mixing and stirring to adhere the carbon black to the magnetic particle (Page 11, lines 39-43). With regards to the limitations that the thickness of the carbon black coat is not more than 0.06 microns, the Examiner takes the position that such a limitation is inherent in the coated particles disclosed by Hayashi et al. given that the particles size of the carbon black particles coated on the magnetic particles and the method of coating such particles as disclosed by Hayashi et al. and that of the claimed invention are identical. With regards to the volume resistivity limitation of claim 25, the Examiner takes the position that the volume resistivity of the particles, which is a material property, disclosed by Hayashi et al. is inherently not more than 1×10^6 Ohm.cm since the chemical composition and the structure of the magnetic particles disclosed by Hayashi et al. and that of the claimed invention are identical. Furthermore, the Examiner would like to point out that the limitation "for a magnetic recording medium" in the preamble of independent claim 22, has been treated by the Examiner as an intended use limitation. All limitations of claims 22-30 are either inherent or disclosed in the above reference.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-19, 31, and 32 are rejected under 35 U.S.C. 102(a) as being anticipated by Hayashi et al. (US 0957 474 A1).

Hayashi et al. disclose a magnetic recording medium comprising a nonmagnetic base film, and a magnetic recording layer comprising a binder and black magnetic acicular composite particles having an average particle size of 0.051 to 0.72 microns and comprise magnetic acicular particles coated with a organosilane compound, a polysiloxane or a modified polysiloxane and a carbon black coat on the organosilicon coat wherein the amount of the carbon black is 0.5 to 10 parts by weight per 100 parts by weight of the magnetic particle and wherein the carbon black particles have a particle size of 0.002 to 0.05 microns (See Abstract). The magnetic particles may be exemplified as magnetic acicular iron oxide particles (Page 6, lines 3-6). The aspect ratio of the magnetic particles is 2:1 to 20:1, the geometrical standard deviation values not more than 2 (Page 7, lines 43-46 and 51-55), the BET specific surface area is 15 to 150m²/g, the blackness is 18 to 34 and the volume resistivity is not more than 1x10¹⁰ Ohm.cm **(thus meeting the limitations of claims 14-18)** (Page 8, lines 116). The magnetic iron oxide particle may have a coat on at least a part of the surface of the particles of one compound selected from the group consisting of hydroxides of aluminum, oxides of aluminum, hydroxides of silicon and oxides of silicon in an amount of 0.01 to 50% by weight, calculated as Al or silicone oxide, based on the total weight of the magnetic iron oxide particles **(thus meeting the limitations of claim 2)** (Page 12, lines 40-45). The

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modified polysiloxanes are modified by polyethers, polyesters or epoxies. The alkoxysilane compounds include methyl triethoxysilane, dimethyl diethoxysilane and tetraethoxysilane (**thus meeting the limitations of claims 4 and 5**). The polysiloxanes are represented by Figure II on Page 10 (**thus meeting the limitations of claims 6 and 7**) (Page 10, lines 1-55). The polysiloxanes modified by the polyethers, polyesters and epoxy compounds are represented by Figures III, IV, V and on Pages 10 and 11 (**thus meeting the limitations of claims 8 and 9**). The coating amount of the organosilicon compounds is usually between 0.02 to 5% by weight (**thus meeting the limitations of claim 10**) (Page 11, lines 51-54). The magnetic recording medium has a gloss of coating of 150 to 300%, a surface roughness of not more than 12 nm, a linear absorption of coating film of 1.30 to 10 mm^{-1} and a surface resistivity of not more than $1 \times 10^{10}\text{ ohm.sq.}$ (**thus meeting the limitations of claim 19**) (Page 14, lines 4-10). With regards to the limitations that the thickness of the carbon black coat is not more than 0.06 microns (**as recited in claim 12**), the Examiner takes the position that such a limitation is inherent in the coated particles disclosed by Hayashi et al. given that the particles size of the carbon black particles coated on the magnetic particles and the method of coating such particles as disclosed by Hayashi et al. and that of the claimed invention are identical. With regards to the absorption amount limitation of claim 13, the Examiner takes the position that the absorption of the particles, which is a material property, disclosed by Hayashi et al. is inherently 0.01 to 0.3 mg/m^2 since the chemical composition and the structure of the magnetic particles disclosed by Hayashi et al. and that of the claimed invention are identical. With regards to the limitations that the carbon

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black coat is obtained by mixing the carbon black particles with the magnetic particle and applying a shear force, the Examiner would like to point out that the determination of patentability for product claims containing process limitations is based on the product itself and not on the method of production. If the product is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985) and also see MPEP 2113. In this case, the product (i.e., the coated magnetic particle) is the same despite the process limitation of applying the carbon black coat by mixing the carbon black particles with the magnetic particle and applying a shear force. All limitations of claims 1-19, 31, and 32 are either inherent or disclosed in the above reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20, 21, and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 0957 474 A1) in view of Hayashi et al. (US 5,830,557).

Hayashi et al. disclose a magnetic recording medium comprising a nonmagnetic base film, and a magnetic recording layer comprising a binder and black magnetic

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acicular composite particles having an average particle size of 0.051 to 0.72 microns and comprise magnetic acicular particles coated with a organosilane compound, a polysiloxane or a modified polysiloxane and a carbon black coat on the organosilicon coat wherein the amount of the carbon black is 0.5 to 10 parts by weight per 100 parts by weight of the magnetic particle and wherein the carbon black particles have a particle size of 0.002 to 0.05 microns (See Abstract). The magnetic particles may be exemplified as magnetic acicular iron oxide particles (Page 6, lines 3-6). The aspect ratio of the magnetic particles is 2:1 to 20:1, the geometrical standard deviation values not more than 2 (Page 7, lines 43-46 and 51-55), the BET specific surface area is 15 to 150m²/g, the blackness is 18 to 34 and the volume resistivity is not more than 1x10¹⁰ Ohm.cm (Page 8, lines 116). The magnetic iron oxide particle may have a coat on at least a part of the surface of the particles of one compound selected from the group consisting of hydroxides of aluminum, oxides of aluminum, hydroxides of silicon and oxides of silicon in an amount of 0.01 to 50% by weight, calculated as Al or silicone oxide, based on the total weight of the magnetic iron oxide particles (***thus meeting the limitations of claim 34***) (Page 12, lines 40-45). The modified polysiloxanes are modified by polyethers, polyesters or epoxies. The alkoxysilane compounds include methyl triethoxysilane, dimethyl diethoxysilane and tetraethoxysilane. The polysiloxanes are represented by Figure II on Page 10 (Page 10, lines 1-55). The polysiloxanes modified by the polyethers, polyesters and epoxy compounds are represented by Figures III, IV, V and on Pages 10 and 11 (***thus meeting the limitations of claims 35 and 36***). The coating amount of the organosilicon compounds is usually between 0.02 to 5% by weight (Page

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11, lines 51-54). The magnetic recording medium has a gloss of coating of 150 to 300%, a surface roughness of not more than 12 nm, a linear absorption of coating film of 1.30 to 10 mm^{-1} and a surface resistivity of not more than 1×10^{10} ohm.sq. (***thus meeting the limitations of claim 21***) (Page 14, lines 4-10).

Hayashi et al., in EP 0957 474A1, do not disclose that the magnetic recording medium comprises a non-magnetic undercoat layer on the nonmagnetic base film and under the magnetic layer.

However, Hayashi et al., in US 5,830,557, disclose a non-magnetic undercoating layer for a magnetic recording medium having excellent surface smoothness, high strength, and excellent protection property against oscillation (Column 1, lines 10-22) and further disclose that the undercoating layer provides a magnetic recording medium having a small light transmittance, excellent surface smoothness and a uniform thickness by forming the magnetic recording layer thereon (Column 5, lines 58-65).

Accordingly, it would have been obvious to add a non-magnetic recording layer, as disclosed by Hayashi et al. in US 5,830,557, to the magnetic recording medium disclosed by Hayashi et al. in EP 0957 474 A1 given that Hayashi et al. specifically teach in US 5,830,557 that the non-magnetic undercoating layer has an excellent surface smoothness, high strength, and excellent protection property against oscillation (Column 1, lines 10-22) and provides a magnetic recording medium having a small light transmittance, excellent surface smoothness and a uniform thickness by forming the magnetic recording layer thereon (Column 5, lines 58-65).


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Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (703)305-0594. The examiner can normally be reached on Mondays and Thursdays from 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703)308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-5408 for regular communications and (703)305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-5665.


Sheeba Ahmed
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December 30, 2002